

# Pretty as a Pixel: Issues and Challenges in Developing a Controlled Vocabulary for Video Game Visual Styles

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## ABSTRACT

Despite the increase in interest in video games across commercial and academic areas, organizational systems for classifying them remain inadequate, particularly in describing the visual styles of video games. Because video games are by and large a visual medium, the ability to describe their visual “look” coherently and consistently greatly contributes to their discovery through classification. A set of controlled terms would be instrumental in complementing game recommendation engines and search applications in digital libraries to meet users’ content-related information needs. In our study we examine the academic and user-generated content about video games’ visual styles in order to extract potentially useful controlled vocabulary terms. These terms are then organized into facets and arranged into a classified schedule. In this poster, we discuss the challenges in our controlled vocabulary term definitions and their application.

## Categories and Subject Descriptors

H.3.1 [Information Storage and Retrieval]: Content Analysis and Indexing – *Thesauruses*

## General Terms

Design, Standardization

## Keywords

Video game, Interactive media, Aesthetics, Artistic style, Visual style, Thesaurus, Taxonomy, Controlled vocabulary

## 1. INTRODUCTION

Recent years demonstrate a huge growth of interest in video games. As interest in video games increases, so does the need for intelligent access to them. Organizational systems for video games that are currently available, however, are severely lacking due to several reasons such as the unique nature of video games as cultural artifacts, and the lack of efforts for standardization [2]. McDonough et al. [3] have examined the difficulty of applying FRBR and explored how to utilize existing metadata schemas, respectively, to collections of video games with varying results and many caveats. Other organizational systems provide only

minimal information about each game. For example, most of the metadata provided in WorldCat or commercial game-related websites tend to be basic descriptive information such as title, platform, publisher, release date, and so on [2]. Catalogers turning to the Library of Congress Subject Headings, moreover, will find little help in achieving specificity in their classifications. In order to improve the search and discovery of video games, it is necessary to explore different kinds of metadata elements that can provide useful information about the content of the game itself.

In addition to the genre, one possible subject metadata that can potentially assist users’ access to video games is the artistic or visual style of the game. Visual style categories already richly augment “traditional” artistic objects like paintings and sculpture by providing descriptive information about their shared visual elements, thereby allowing users to better understand, and make connections about, the artistic concept. For video games, the importance of identifying and categorizing this information is increasing as the tools and techniques for creating the visuals of the games evolve and the styles become widely diversified. However, there is currently no known standardized controlled vocabulary that can effectively describe video game artistic styles and be used in organization systems and recommendation engines.

The objective of our research is to create a controlled vocabulary for describing video game visual styles. This is a challenging task for two main reasons: 1) a significant lack of previous scholarship on the subject, and 2) the very nature of classifying “art.” In this paper, we adopt a definition of *visual style* as “a cohesive and unifying visual aesthetic,” a simple but prickly notion. As one can see, there are potential issues from the start, for what actually makes an aesthetic *cohesive* can be quite subjective. Here, we are not trying to argue why certain video games belong together per se, but rather provide a framework and terminology for such aesthetic justifications in the future. We have attempted to create a way in which video game visual styles can be defined and described from the various facets of their aesthetic “look”, such that gamers, librarians, curators, historians, and researchers can make useful and consistent determinations about video games.

In addition to aiding resource description, we foresee many other benefits of having a controlled vocabulary for visual styles. Such a vocabulary would enhance the performance of information retrieval and organizational systems of video games by providing semantic information and linguistic structure [4]. Similarly, these terms may improve online video game recommendation engines or in-person reader’s advisory services. Moreover, since a number of other media employ similar types of artistic or visual styles, this vocabulary may also be useful for describing not only video games, but also other popular cultural artifacts such as animations, comics, etc. that are important parts of digital library collections.

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Conference ’10, Month 1–2, 2010, City, State, Country.

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## 2. DESIGN METHOD

We started our term search with a review of the existing scholarly literature. This was difficult endeavor as very few papers exist that share our particular intent. One notable exception was the work of the Digital Games Research Association and, in particular, by Järvinen [1], which we drew on heavily for informing our own top-level artistic style distinctions. We also examined amateur and professional resources for terms-of-art, including such sources as blogs, gamer and industry websites, designer forums, and video game art appreciation websites. Due to their common use of technique and technology, we broadened our scope to include other forms of digital and computer-based art. These communities were helpful for advancing terms that describe artistic techniques. With our initial set of collected terms, we developed a preliminary taxonomy for describing a game's visual style. These terms were assigned preferred or non-preferred status, with the preferred terms collected into a classified schedule.

## 3. FINDINGS

During the discovery process we determined that a "visual style" might best be captured by describing the different aesthetic *facets*, or ways in which a visual look could be perceived. We decided to group our set of terms according to three facets: 1) the artistic style facet, 2) the artistic technique facet, and 3) the artistic dimension facet. The artistic style facet includes terms that describe the intentional aesthetic organization of the game's artistic elements. These terms help users understand, through visual reference, how artistic elements like color, composition, and line weight might be used. Examples of the artistic style facet include *photorealism*, *caricature*, and *engraving*. The artistic techniques, on the other hand, are the tools by which that particular style is realized, typically the modeling and rendering methods used to create the "look" of the game. *Rotoscoped* and *rasterized* are examples of artistic techniques. Finally, the artistic dimension facet simply describes the "dimensionality" of the art (but not the player's perspective). This facet is limited to three values—*2D*, *3D*, and *multiple* (a combination of 2D & 3D).

Our encoding scheme uses the term-combination mechanism known as a "triplet" to capture the information from each of these facets. The term combination offers a multifaceted understanding of the game's artistic style. For example, a game like *Okami* could be described "*sumi-e / cel-shaded / 3D*". This triplet combines *sumi-e* from the artistic styles facet, *cel-shaded* from the artistic techniques facet, and *3D* from the artistic dimension facet (Fig.1).



Figure 1. Screenshot from *Okami* (2010)

We defined a total of 38 preferred terms to be used when describing video game artistic styles. In addition, we developed

several rules for using the terms and the classified schedule, in order to aid applications of the controlled vocabulary.

## 4. DISCUSSION

As previously mentioned, one of the greatest challenges was the lack of coherent and consistent terms used in this domain. Both styles and techniques tended to be described by academics, practitioners, and gamers alike in highly variable ways. Further, terms such as "ray tracing," while indeed describing a technique, are not necessarily obvious to the cataloger as being readily apparent in the game's visuals. Additional complications arise in the application of style terms like "photorealism" to games that may have intended that look but achieved it differently through different techniques perhaps not available to older games. Additional complications and issues are described below.

- Characters and objects in video games are often stylistically distinct from the background environment or worlds in which they inhabit, complicating the application of terms.
- Video game art might intentionally replicate the visual style of a past art movement (e.g. Impressionism or De Stijl), causing some terms to be added or modified.
- Technology used to limit the art style possible, but now this is not so. Some games today, however, intentionally replicate the older *look* of a game, challenging the proper usage and meaning of some terms.

## 5. CONCLUSION AND FUTURE WORK

Our controlled vocabulary attempts to define visual styles as "universally" as possible, limiting the subjective and inconsistent use of terms by providing a framework for interpretation. Due to the paucity of literary warrant and critical authority, much remains to be debated about the usage and placement of our indexing terms. The authors acknowledge this limitation and look forward to starting a discussion in the digital library community to further develop and refine our vocabulary to be more useful and comprehensive. This is our first attempt in creating a controlled vocabulary for this type of metadata, and is naturally incomplete. However, because it is faceted and hierarchically structured, the scheme is flexible and easily extendable. Catalogers can add terms under the facet trees when they need to in the future, according to future uses and needs. In future works, we hope to expand our controlled vocabulary by revising definitions and adding new terms for different artistic styles or techniques.

## 6. REFERENCES

- [1] Järvinen, A. 2002. Gran stylissimo: The audiovisual elements and styles in computer and video games. In *Proceedings of Computer Games and Digital Cultures Conference*, 113-128.
- [2] Lee, J. H., Tennis, J. T., Clarke, R. I., and Carpenter M. 2013. Developing a video game metadata schema for the Seattle Interactive Media Museum. *International Journal on Digital Libraries*, 13, 2, 105-117.
- [3] McDonough, J., Kirschenbaum, M., Reside, D., Fraistat, N., Jerz, D. 2010. Twisty little passages almost all alike: Applying the FRBR model to a classic computer game. *Digital Humanities Quarterly*, 4, 2.
- [4] Milstead, J. L. 1997. Thesaurus in a full-text world. In *Visualizing subject access for 21st century information resources*. UIUC, GSLIS, Urbana-Champaign, IL, 28-38.